The Social and External Benefits of Education

(for primary, secondary, tertiary education)

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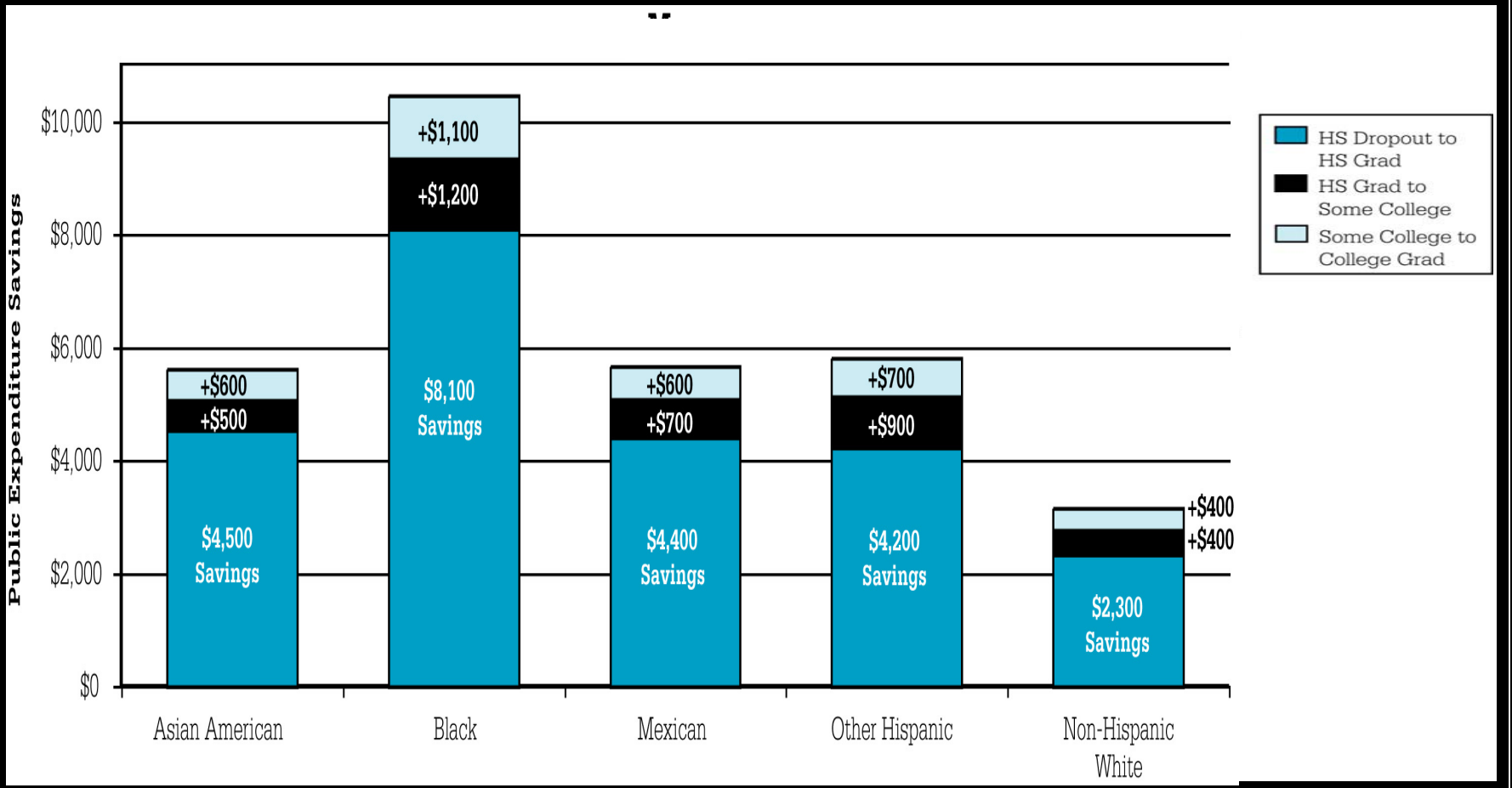
Terminology

- External Benefits ("Market Benefits")
  - Private actions that affect others ("team work")
  - *"Person A's investment benefits person B"*
    - Address directly via tax/subsidy (education tax credit)

- Social Benefits ("Non-Market Benefits")
  - Private actions that affect community (crime/health)
    - Hence desirability of investment by society
      - Return on investment must be weighted against alternatives (building prisons or roads etc)

Social Benefit – Example

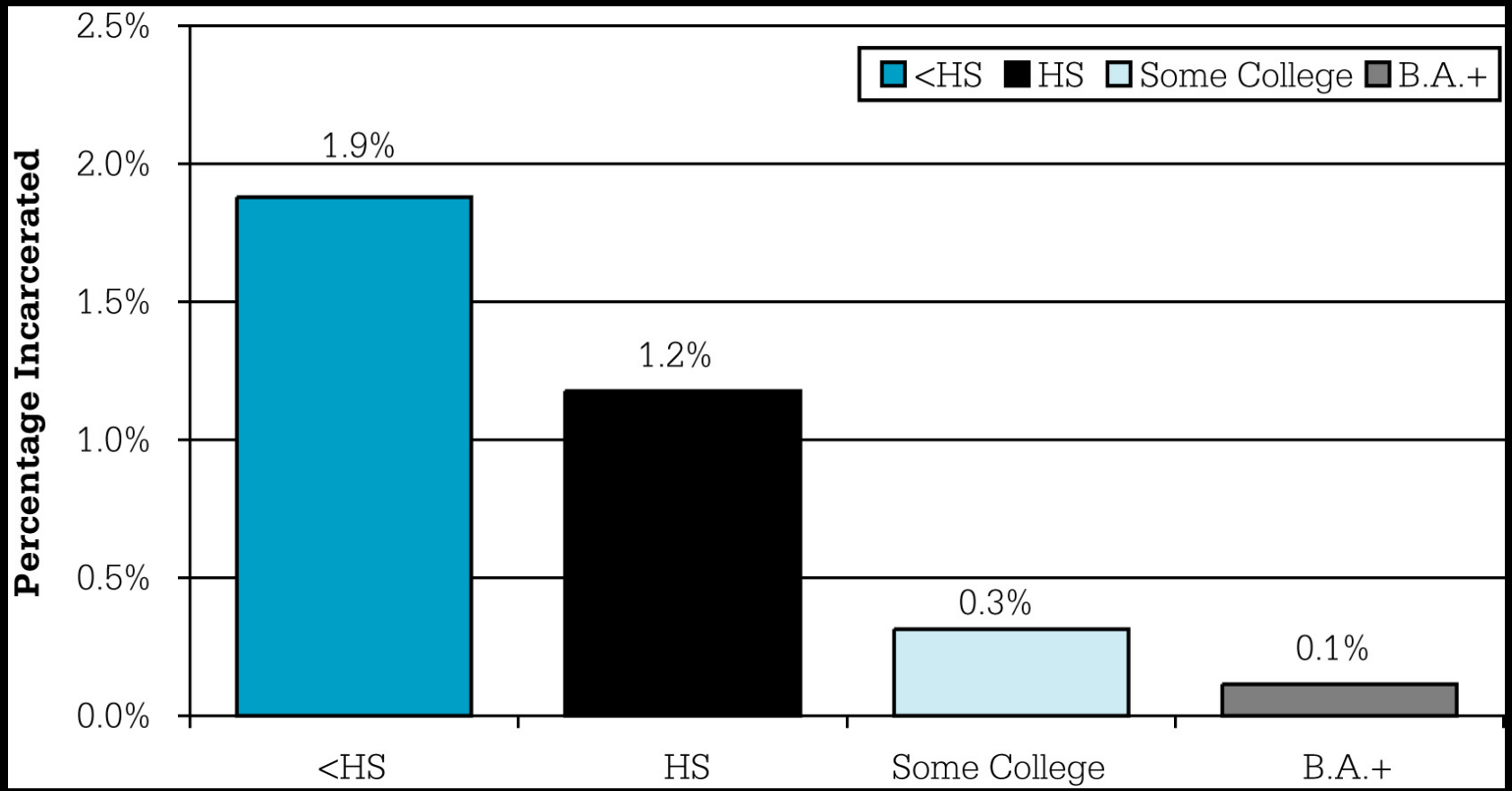
Annual Savings on Social Programs Due to Increased Education



Savings for 30-Year-Old Men Relative to High School Dropouts, 2003 Dollars. Source: Vernez, G., R.A. Krop and C.P. Rydell. (1999). *Closing the Education Gap.* Santa Monica: Rand Corporation.

Social Benefit - Crime

Incarceration Rates by Education



Source: Harlow, C.W. (2003). *Education and Correctional Populations for 1997.* Bureau of Justice Statistics, Department of Justice. NCJ195670.

Social Rates of Return

McMahn (1997), (Psacharopoulos & Patrinos, 2004)

	External Benefit	Social Benefit Accruing to Individual	Social Benefit Accruing to Society	Total Social Rates of Return (Cols 1+2+3)
Primary	(8.5%)	6.8%	2.5%	17.8% **(13.4%)**
Secondary	(9.4%)	7.5%	2.8%	19.6% **(10.3%)**
Higher	(8.5%)	6.8%	2.5%	17.8% **(9.5%)**

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"In the case of education, some have succeeded in identifying positive externalities but few have been able to quantify them… [The] empirical evidence is scarce and inconclusive. In fact, some estimates give negative values, while others give very high estimates.

— Psacharopoulos & Patrinos (Education Economics, 2004)

Economists (and others) have generally had little success in estimating the social effects of different investments, and, unfortunately, education is no exception.

— Gary S. Becker *1992 Nobel Laureate* ("Human Capital")

Studies of model early [childhood development] intervention programs do not show universally positive results… Studies with nonrandomized designs frequently find insignificant or wrong-signed effects.

— Janet Currie (Journal of Economic Perspective, 2001)

Data and Statistics

Social Benefits of Education

- **Clear Implications:**
  - **Social Benefits cannot be confirmed by the data**
    - Measurement and Identification problems create near insurmountable statistical issues
  - **No Consensus Estimates, no Estimate Ranges**
  - Question high estimates and confident language in papers that have not been reviewed for accepted journals

The Problem:
Establishing a Causal Relationship

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Education ➔ Less crime?

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Because it has above average education?

Education → Less crime?

or

Less crime → attracts better educated population?

or

Education → Income → Policing?

or

Income → Education?

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Solution:

- **Refer to ASSOCIATION not CAUSATION**
  - *"More education is associated with less crime"*

vs.

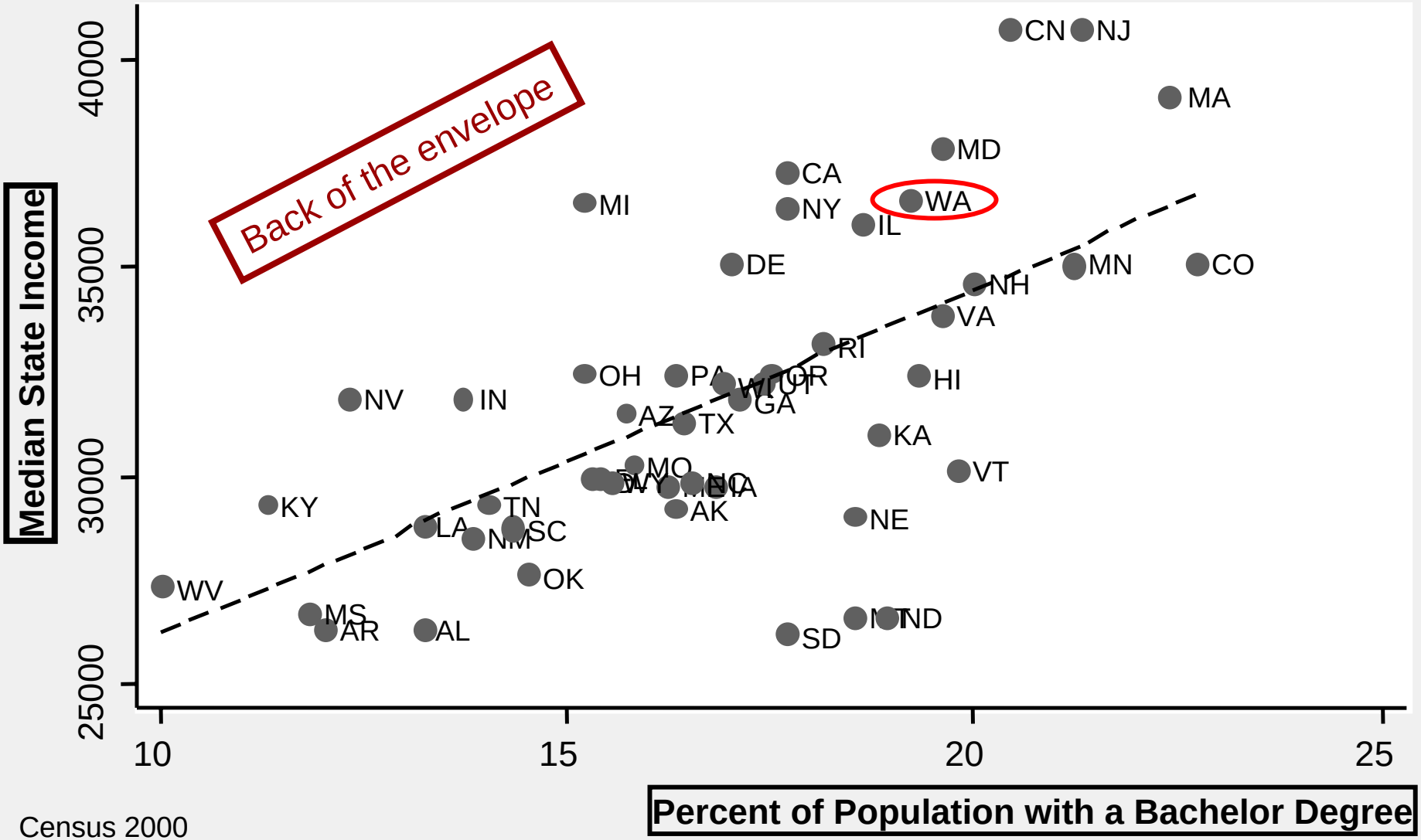
  - "More education causes less crime"

Relevance for WA

- **Assuming**
  - average magnitudes are correct
  - return on education is ~8%-20%
- How relevant are these US results for WA?
  - Most articles average over national or international data
- Actual statements that pertain to WA require actual econometric studies with WA data
- What DO we know about WA data?

Educational Attainment & Median Income

Using US State Data, a 1% increase in workers with Bachelor Degrees is associated with a $823 increase in Median Earnings



Census 2000

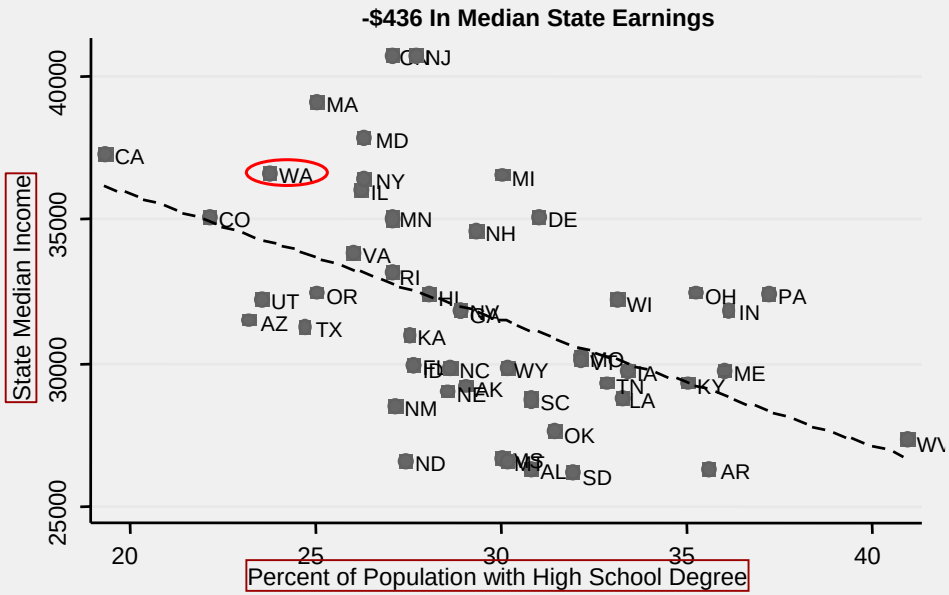
Back-of-the-Envelope Education Benefits
If Washington had…

…1% more workers whose highest degree is	Increase in WA Median Income	Change in total WA income
High School	- $ 436	-$750 Mil
Some College Experience	- $ 182	- $320 Mil
BA	+ $ 823	+ $1.4 Billion
Advanced Degree	+ $ 1456	+$2.5 Billion

- **I have a picture of this…**

These figures are subject to all the above mentioned interaction and control biases that haunt the estimates in this literature

1% Increase In Workers with High School Degrees -$436



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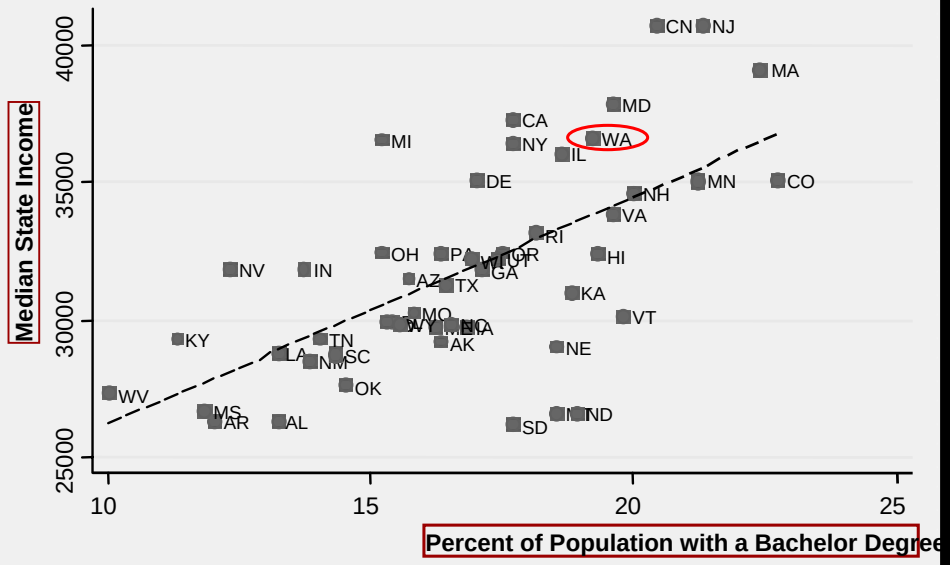
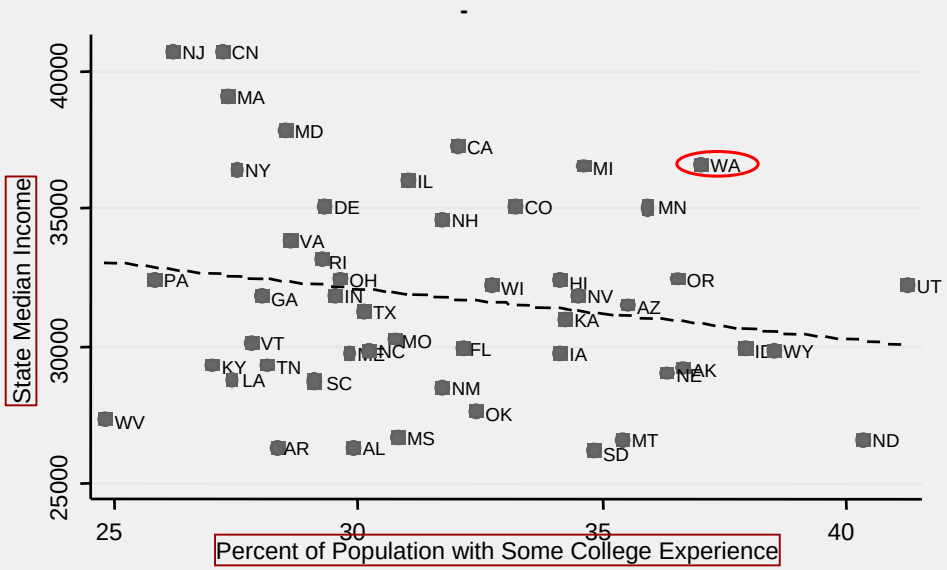
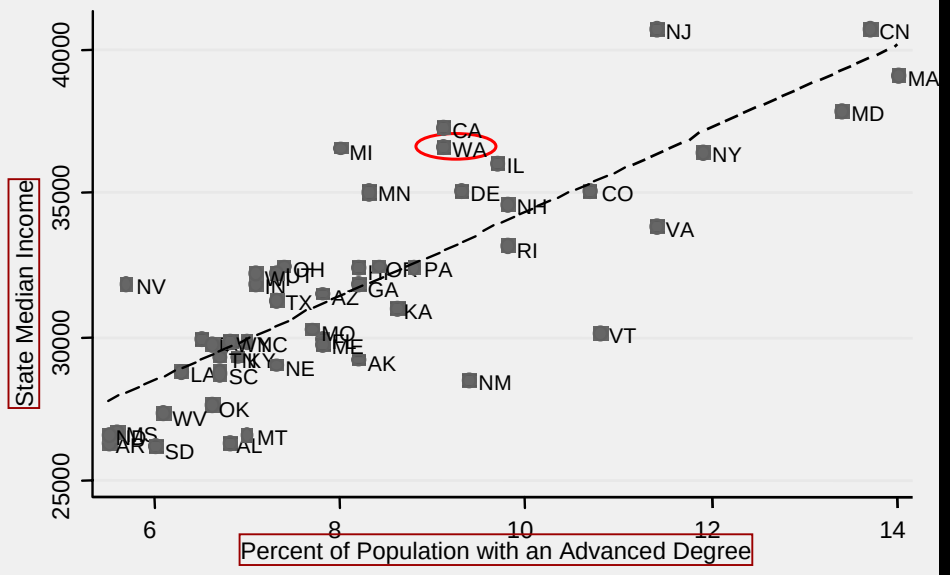


1% Increase In Workers with Some College -$182



1% Increase In Workers with Advanced Degrees +$1456



Median Impact vs Segmented Impact
Example: a 1% increase in BAs…

…raises wages of workers with		
No High School Degree	+ $ 249	1.1%
High School Degree	+ $ 479	1.6%
Some College Experience	+ $ 547	1.6%
Advanced Degree	+ $ 1245	2.4%
Median worker Income	+ $823	2%

These figures are subject to all the above mentioned interdependence and control biases that haunt *all* estimate in the literature

The Geographic Dimension

"But we can import workers for the new economy to get all the social benefits…"

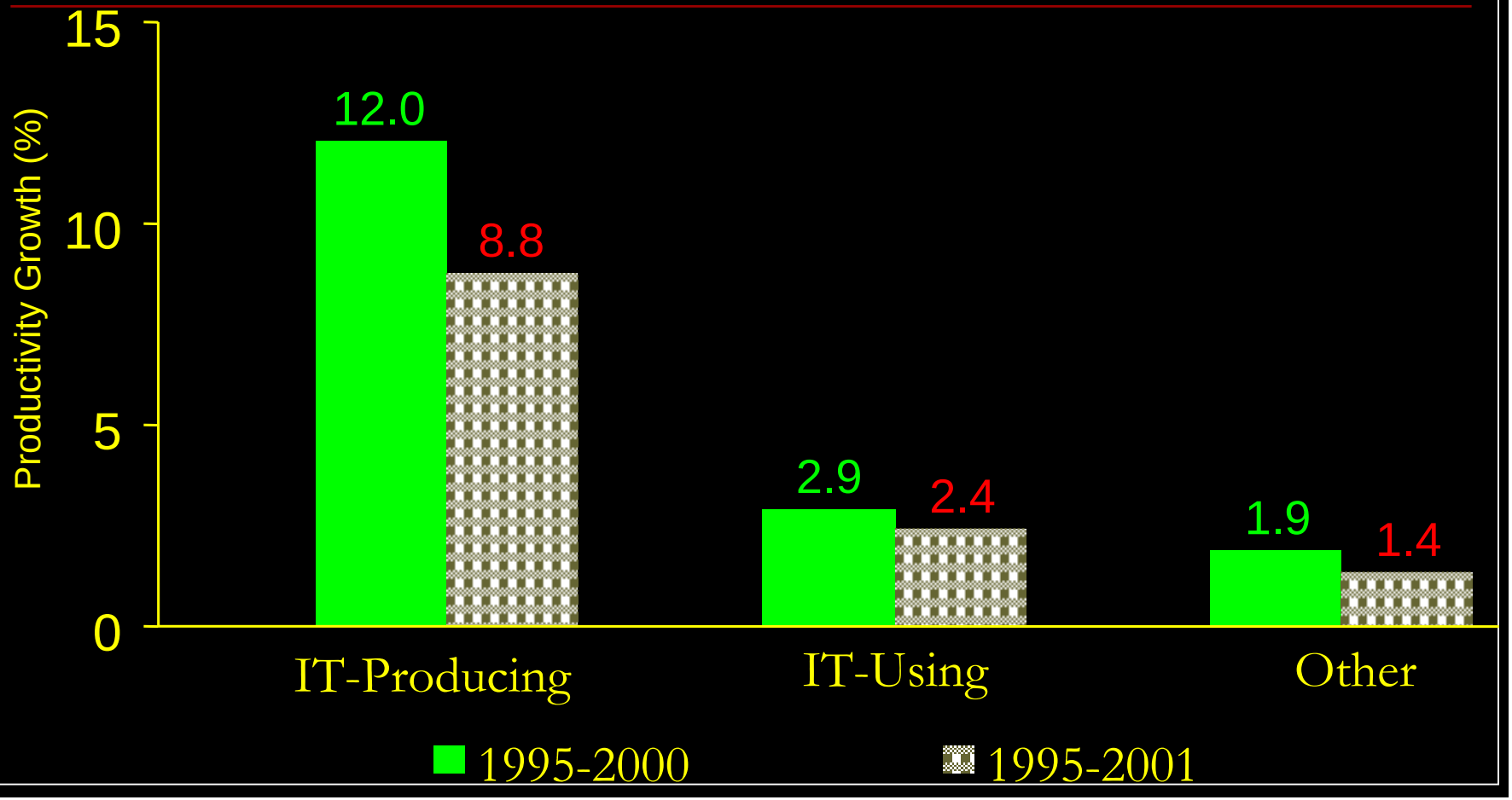
- **Geographic Component**
  - More Education is Better, but should we produce it (& pay for it?)?
    - The Global Economy provides goods and migrants
      - Migrants harvest apples and code software (excess demand for highly skilled workers in the region is about 70000, Beyers 2004)

- **The Colorado Paradox:**
  - A state with one of the nation's most educated populaces, has one of the worst records for sending its kids to college

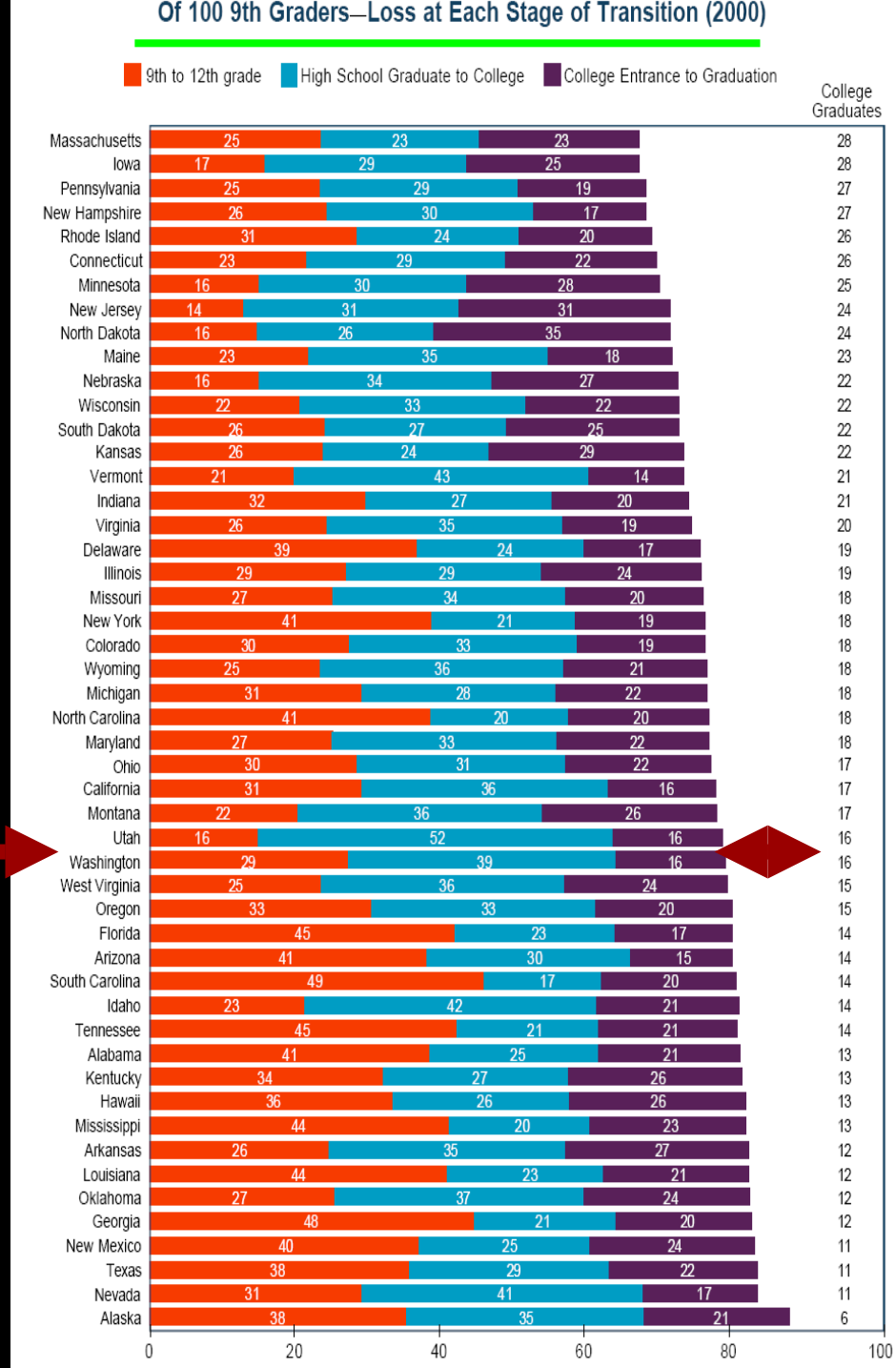
- **Colorado Responded** with "*Student Access and Success*" WHY?
  - 5 fastest growing job sectors require post-secondary training; the fastest shrinking job sectors do not.
  - Provide good jobs for locals, rather than imports

See eprc web site www.

"New Economy" ("Brainu-Facturing") Grows About 6 Times Faster Than The Manu-Facturing Economy



IT-using defined as = 1995 IT capital shares above the median US share (Stiroh 2002)



Where to spend in WA?

- 16% of WA 9th graders finish College
  - 31st in the Nation
  - MA produces 75% more!
    - (MA spends 25% more)
- But wait, there is much more in this Figure …

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- Highlights need for Comprehensive Package:
  - Or squander any Early Child Development success
- ACCESS *and* SUCCESS matter ("Prepare, Enroll, Graduate")

Where to spend?
Access & Success

- Access
  - Provide BA slots (high drop out rates are paired with too few slots)
  - Encourage BA slots in Brainu-facturing
  - Optimize CC slots that lead to high productivity paths
  - *University Centers* at the CC level must feature quality control
- Success
  - Start in K1 – International / High Tech High Schools
  - Focus on effective principles and teachers
  - Standards: Math, Science, Scores
- CollegeInColorado.org
  - College Opportunity Fund: transition funding for public higher education to a student stipend program

Summary

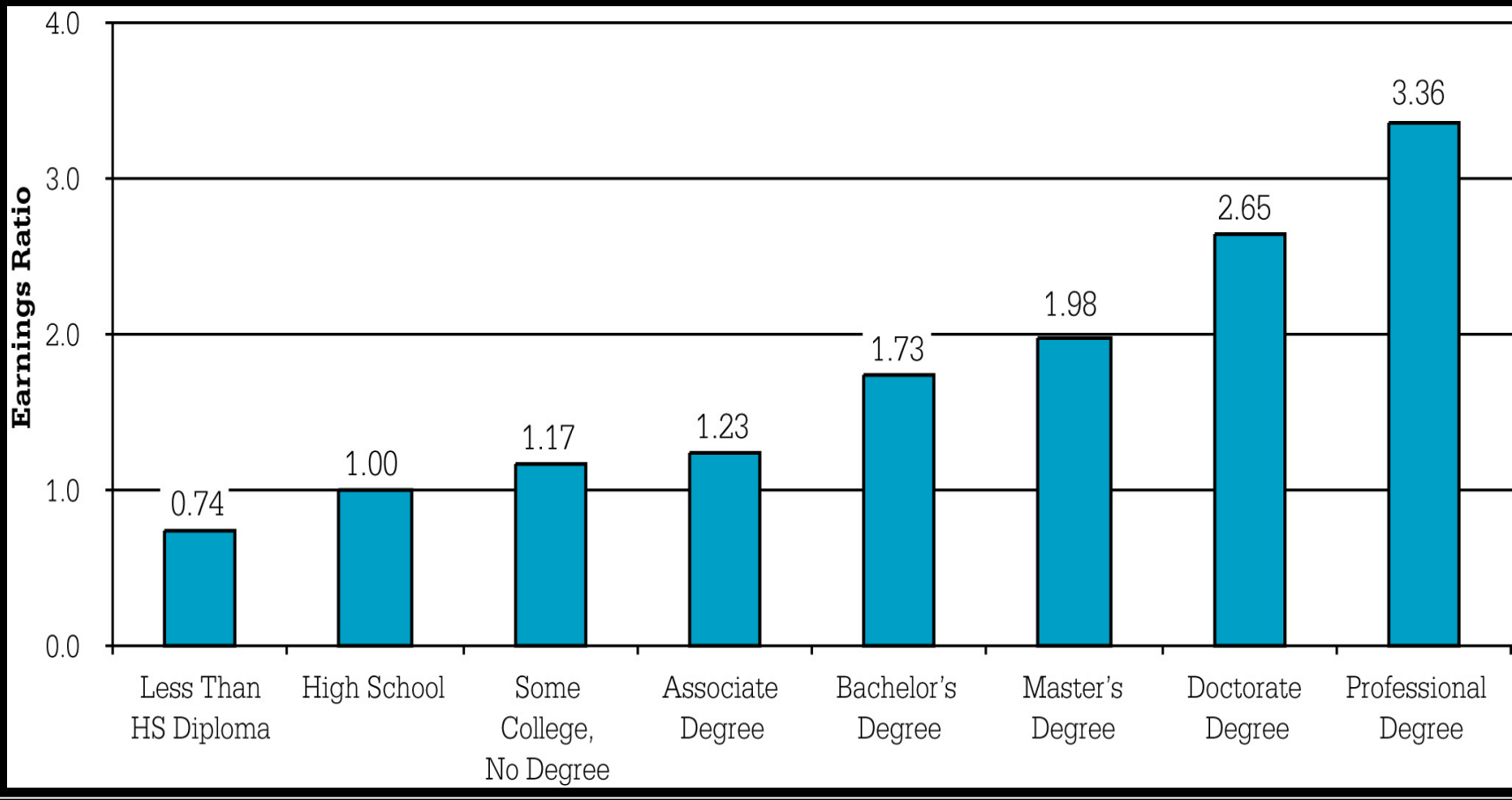
- **Education is associated with strong wage gains for the average Washingtonian and for *each educational group***

- Social Benefits exist in theory but are hard to prove in Statistics
- Refer to association rather than causation
- Easy Spending Rules: address glaring key shortcomings

- **The Future Economy does not look like today's**
  - Brainufacturing vs Manufacturing
  - Upcoming structural change requires new skills/incentives
- Seek guidance from "what works" (no need to experiment, see MA)

Questions?

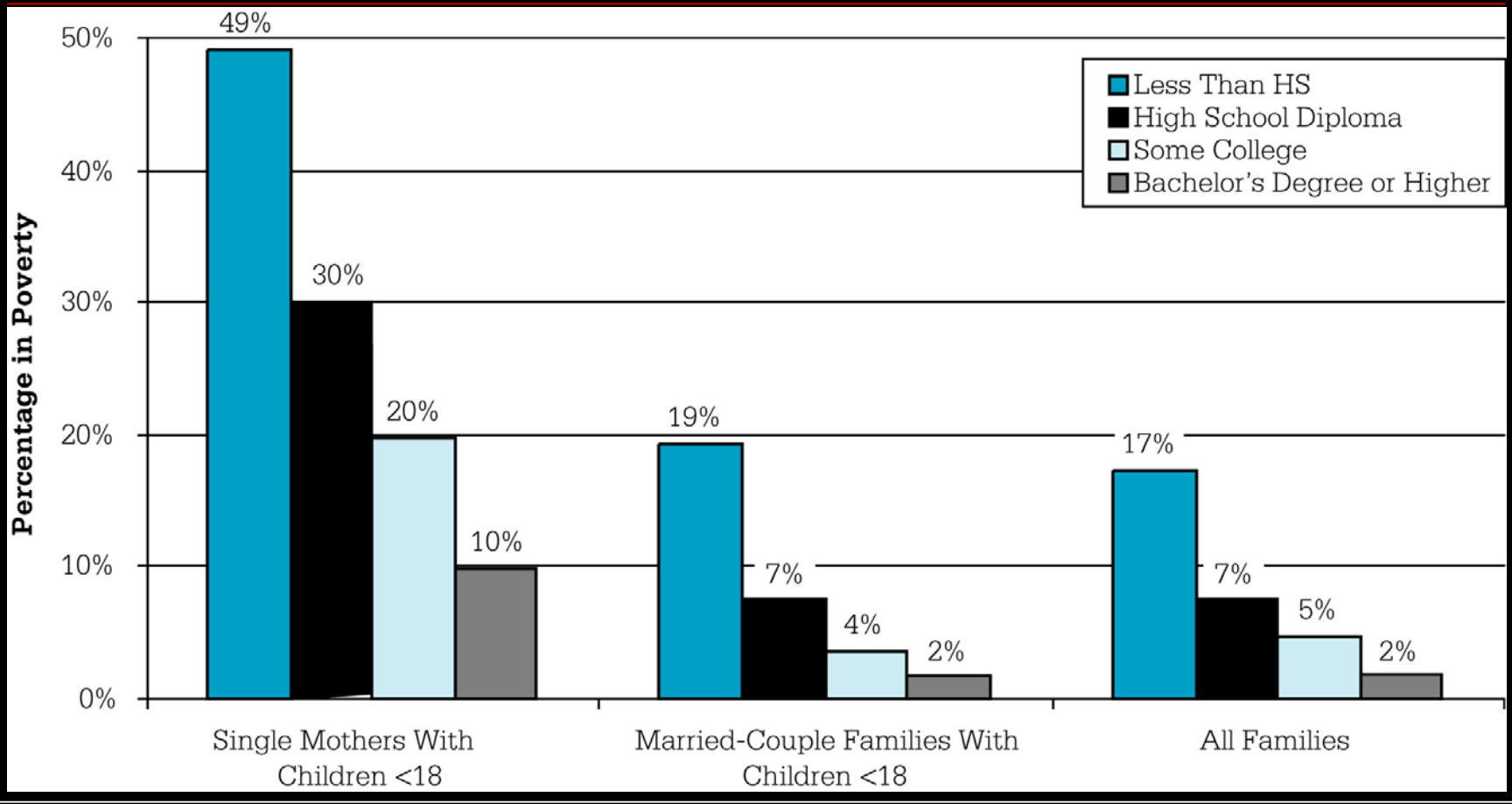
PRIVATE RETURNS - Earnings
Expected Lifetime Earnings
(Relative to High School Graduates, by Education)



Source: Day, G.C. and Newburger, E.C. (2002). *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*. P23-210. Current Population Reports. Census Bureau.

PRIVATE RETURNS - Poverty

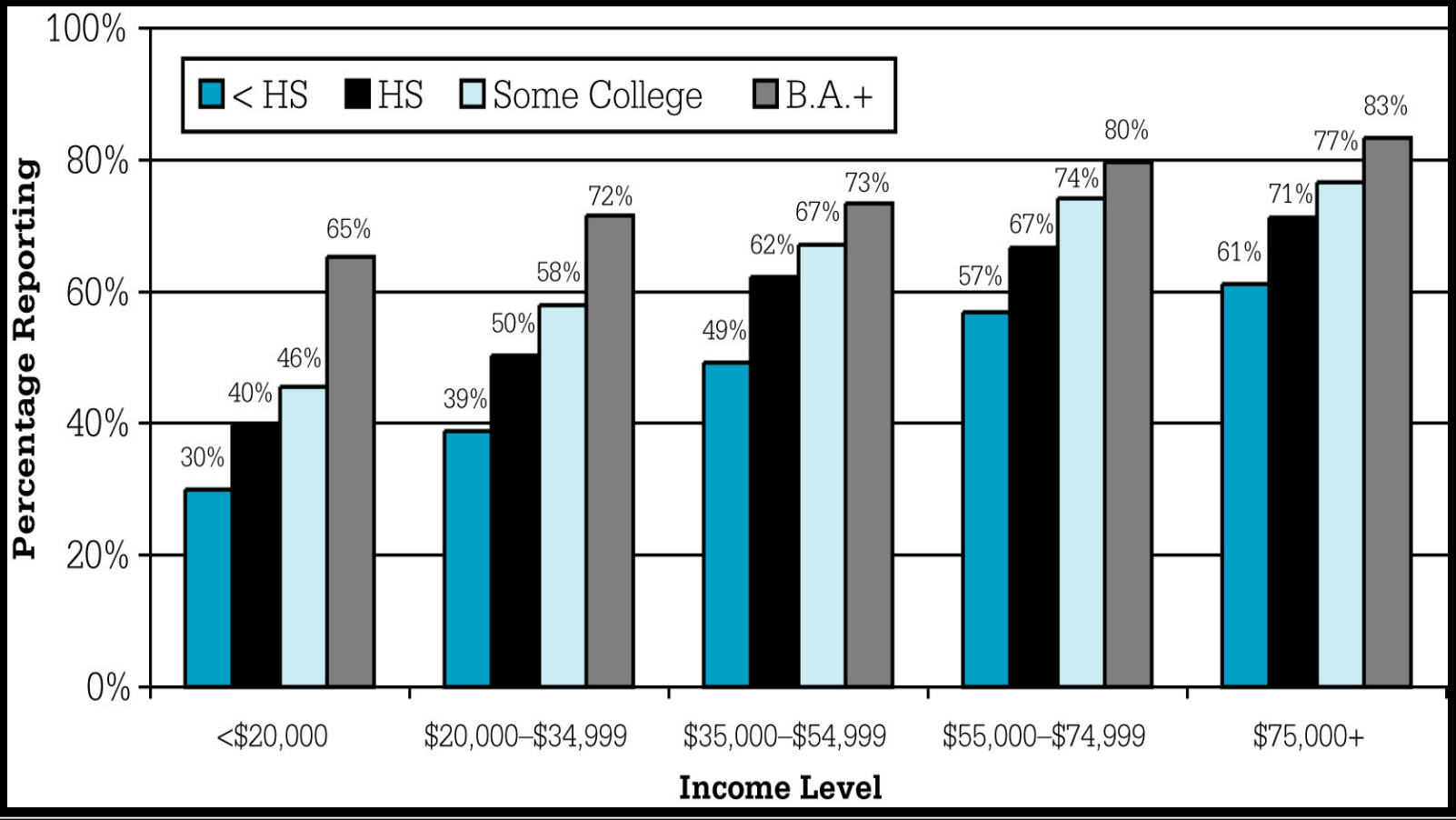
Poverty Rates by Household Type and Education



Source: U.S. Census Bureau. (2001). Current Population Survey, Annual Demographic Survey. P-60.

PRIVATE RETURN – HEALTH

Reporting Excellent or Very Good Health, by Income and Education



Source: National Center for Education Statistics. (2004). *The Condition of Education – for 2001*. U.S. Department of Education.